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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,090	07/08/2003	Dougas M. Baney	10020766-1	9657

7590 10/31/2005

AGILENT TECHNOLOGIES, INC.
Legal Department, DL 429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER	
CHIEM, DINH D	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/616,090	BANEY, DOUGAS M.	
	Examiner	Art Unit	
	Erin D. Chiem	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date. _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the amendment filed on August 10, 2005. Currently, claims 1-10 are pending and claims 11-49 are canceled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 4 and 6-7 are rejected under 35 U.S.C. 102(a) as being anticipated by Ariel et al. (US Application Publication 2003/0068150, hereinafter "Ariel").

Ariel teaches a method of coupling a photonic-crystal fiber (50) to glass or silica rods (108) at both ends [0075]. Ariel's invention comprises a photonic crystal fiber (50) coupled to glass or silica rods on either or both ends ([0075]) by fusion splicing. The photonic crystal fiber comprises holes or voids that are filled with polymeric fluid ([0075]). In further teaching, Ariel et al. disclose using fusion splicing to couple the end faces since electric arc-generated heat may be used to cause air channels 156 to collapse [0086], this is a critical step in manufacturing holey fibers that is filled with a medium such as fluid or gas. Without the sealing step, the medium is exposed to the environment and the holey fiber loses the application effectiveness. Regarding claims 6 and 7, the MPEP permits Applicants to be his/her own lexicographer, therefore, the terms "holey fiber optic cable" is not objected to. However, Applicant does not distinguish the

difference in the Specification between the holey fiber wave-guide and the holey fiber optic cable (Specification; page 6 line 12 – page 7 line 3); therefore, the Examiner shall interpret the terms as equivalent, thus Ariel have also met the limitation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Ariel in view of Filhaber et al. (US 2003/0081906 A1).

Ariel teaches a method of coupling a photonic-crystal fiber (50) to glass or silica rods (108) at both ends [0075]. Ariel's invention comprises a photonic crystal fiber (50) coupled to glass or silica rods on either or both ends ([0075]) by fusion splicing. The photonic crystal fiber comprises holes or voids that are filled with polymeric fluid ([0075]). In further teaching, Ariel et al. disclose using fusion splicing to couple the end faces since electric arc-generated heat may be used to cause air channels 156 to collapse [0086], this is a critical step in manufacturing holey fibers that is filled with a medium such as fluid or gas.

However Ariel does not teach utilizing a light-transmitting adhesive as a coupling means between the holey fiber and the glass or silica rods.

Filhaber et al. disclose as prior art that bonding of optical waveguide fibers to photonic or optical components such as a second optical waveguide fiber, lens or lens arrays typically utilize

adhesive bonding ([0003]) for the purpose of easy coupling without deforming the waveguides such as fusing two waveguides made of two different materials that are not adaptive to melt at the same temperature.

Since Ariel and Filhaber et al. are both from the same field of endeavor, the purpose disclosed by Filhaber et al. would have been recognized in the pertinent art of Ariel.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to alternatively couple the holey waveguide using optical adhesive instead of other coupling method when manufacturing requirements are not stringent since adhesives are simpler tools for coupling optical components.

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariel in view of Levenson (US Patent 6,496,634 B1).

Ariel teaches a method of coupling a photonic-crystal fiber (50) to glass or silica rods (108) at both ends [0075]. Ariel's invention comprises a photonic crystal fiber (50) coupled to glass or silica rods on either or both ends ([0075]) by fusion splicing. The photonic crystal fiber comprises holes or voids that are filled with polymeric fluid ([0075]). In further teaching, Ariel et al. disclose using fusion splicing to couple the end faces since electric arc-generated heat may be used to cause air channels 156 to collapse [0086], this is a critical step in manufacturing holey fibers that is filled with a medium such as fluid or gas.

However, Ariel does not teach the photonic crystal fiber comprising fill hole in an opening into the core such that the filling medium enters the core through the fill hole.

Levenson teaches the method of filling the fiber with the medium through capillary action from the holes in the cladding (Fig. 9).

Since Ariel and Levenson are both from the same field of endeavor, the purpose disclosed by Levenson would have been recognized in the pertinent art of Ariel.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to combine the teachings of Ariel, holey fibers with air cladding and plurality of voids, and Levenson, filling the fiber with a medium via capillary action when immersed in a container of the medium. Ariel teaches filling the voids by sealing one end of the holey fiber to create a vacuum and then fill the voids with the fluid for the purpose of keeping out contaminations versus filling the void through capillary action. However, Ariel's teaching does not undo the well-known method of capillary action to fill microvoids, as taught by Levenson.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariel et al. in view of Hoo et al. (2002, Opt. Eng. 41).

Ariel teaches a method of coupling a photonic-crystal fiber (50) to glass or silica rods (108) at both ends [0075]. Ariel's invention comprises a photonic crystal fiber (50) coupled to glass or silica rods on either or both ends ([0075]) by fusion splicing. The photonic crystal fiber comprises holes or voids that are filled with polymeric fluid ([0075]). In further teaching, Ariel et al. disclose using fusion splicing to couple the end faces since electric arc-generated heat may be used to cause air channels 156 to collapse [0086], this is a critical step in manufacturing holey fibers that is filled with a medium such as fluid or gas.

Hoo et al. teach in their experimental setup having a tunable laser (Fig. 1 (a)) as the light source coupled to the microstructure fiber, more commonly known as holey waveguide, and the

microstructure fiber is coupled to the optical power meter. Clearly, there exists a mean to detect the optical signal received from the microstructure fiber in order to determine the optical power.

Since Ariel et al. and Hoo et al. are both from the same field of endeavor, the purpose disclosed by Hoo et al. would have been recognized in the pertinent art of Ariel et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to follow Hoo et al. experimental set up and in combination with Ariel et al. teaching of fusion coupling to create any basic usable optical device; an input (light source), an operation (holey waveguide adapted to introduce known gas or liquid into the voids) by passing light through, and output (optical power meter and computer) to determine the testing specimen.

Response to Arguments

Applicant's arguments filed on August 10, 2005 have been fully considered but they are not persuasive.

Applicant argued that Ariel does not teach filling the holey fiber with "a known selective absorption medium." Ariel teaches from paragraph 77 to 84, for example, the polymer that is used to fill the voids of the holey fiber. An exemplary polymer taught in the invention was Crystal UGE 0513 manufactured by Sunjet Plc., Midsomer, UK Capillary action draws fluid. Without departing from Ariel's teaching but other polymer such as polymer-dispersed liquid crystal or polyvinylidene fluoride may be used to fill the voids of Ariel's invention.

Regarding Applicant's argument that Ariel's invention teaches away from the Applicant's invention is responded in the rejection above. By sealing the ends of the holey

fibers, Ariel retained the medium within the holey fiber, thus retaining the desired optical characteristics of filling the voids with a known medium having desired characteristics (e.g., refractive index, amplification etc.).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

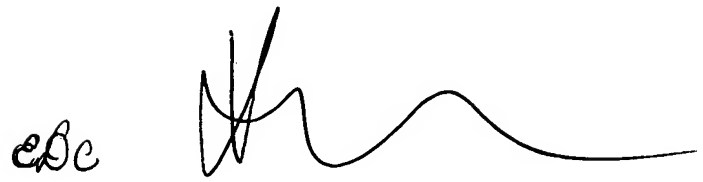
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eggleton et al (US Patent 6,608,952 B2) anticipated the optical waveguide absorption cell as claimed by Applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAVEH KIANNI
PRIMARY EXAMINER



Erin D Chiem
Examiner
Art Unit 2883